State of New Jersey
Department of Environmental Protection and Energy
Division of Responsible Party Site Remediation
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Scott A. Weiner
Commissioner

Karl J. Delaney
Director

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
NO. P 713-693-332

11 OCT 1991

Cris Anderson, Manager
Environmental Manager
L.E. Carpenter Company
1301 E. Ninth Street, Suite 3600
Cleveland, OH 44114

Dear Mr. Anderson:

Re: L.E. Carpenter ACO, dated September 26, 1986
Work Plan for Treatability Study, Dated September 16, 1991

The New Jersey Department of Environmental Protection and Energy (Department) and U.S. Environmental Protection Agency (USEPA) have reviewed the above referenced work plan report and have the following comments concerning the work plan. The agencies do concur with the objectives of this proposed treatability study program for the in-situ bioremediation of groundwater and soil at the L.E. Carpenter site in Wharton, and direct M.A. Hanna to implement the program as soon as possible. Responses to these comments need not delay initiation of the study.

General Comment

The Proposed treatability tests would evaluate biodegradation and soil flushing under saturated test conditions. How could the results be used to predict effectiveness for remediation of the unsaturated zone?

Specific Comments

Item	Page	Comment
1.	1-4	Section 1.3 Objective

A potential difficulty for both in-situ biodegradation and soil flushing is that contaminants such as xylenes and DEHP may be trapped in soil pores and, for that reason, may not be easily biodegraded or flushed. The results of the proposed column flushing/leaching tests should provide some insight into whether this potential difficulty could present a problem for the bioremediation of site soils.

2. 2-5 Section 2.2.2.3 Column Flushing/Leaching Test

In the second complete paragraph, it may be useful to present the estimated hypothesized loading rate for full scale soil flushing in the work plan.

3. The Work Plan states that two columns will be utilized to represent the most favorable and least favorable potential physical soil characteristics. Two columns is probably not sufficient, since soil conditions have been shown to be quite variable across the site. It is recommended that several additional soil columns be collected and soil mapping be performed in order to determine potential inconsistent biodegradation, due to variation in strata and biological activity.

4. 2-7 Fourth paragraph.

The Work Plan discusses the application of water to the top of the soil column and states that, if required, a pressure will be applied to the soil column to accelerate the permeation rate. It is likely that pressurizing the soil column with water will affect the ratio of air to water in soil interstices. Since a moisture content of greater than 79% affects microbial activity and availability of oxygen, application of water pressure to the soil column could possibly inhibit biological activity. Before the applied pressure is introduced to the column, its effect on moisture content must be determined.

5. Excess air must be desorbed from column of soil to avoid air binding in downflow mode of soil leaching.

6. The last sentence in the second to the last paragraph could be better explained. What is meant by the comparison of the maximum test permeation rate to the natural permeability of the soil? Does the latter phrase refer to the natural rate of groundwater permeating a unit of soil area? Why is the one order of magnitude ratio important?

7. 3-1 3.1 Field of Soil

The location monitoring wells and soils to be sampled for the testing program has to be stated in the Work Plan. Also the number of samples to be performed for each test protocol should be included in a table.

8. Summary of Soil Sample Analytical Parameters and Test Methods, Table 3-2

Test methods for soils should include analysis for nitrogen and total phosphorous in order to determine whether soil contains adequate nutrients.

Should you have any questions, you may contact me at (609) 633-1455.

Sincerely,

E. G. Kaup

Edgar G. Kaup, P.E., Case Manager
Bureau of Federal Case Management

kj

c: G. Blyskun, BGWPA
D. Henderson, WSI
J. Josephs, USEPA
J. Prendergast, BEERA